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ABSTRACT

Studies of text comprehension have suggested that readers focus on different levels of ideational unit while reading, thereby affecting the quality of their comprehension of the text. A study examined the viability of the deep-surface categorization with regard to essay-writing and the relation of different approaches to writing to the quality of the written outcome. A "process x level" model of essay writing was used to classify the approach used by 24 student writers, ranging from grade 11 to graduate school, who were interviewed about the way they were handling a current assignment. Three groups were distinguished: (1) deep (where focus was consistently high throughout planning, composing, and revising); (2) surface (where focus was consistently low); and (3) mixed (where focus varied). Completed essays were evaluated on: grade, length, structure, and mode. Results stated that writers using a deep approach achieved higher grades overall, but some writers using mixed and surface approaches achieved high grades through sheer length and wealth of detail. Also all deep-produced essays were genre-appropriate, while all surface-produced were genre-inappropriate. Findings suggest that the deep approach is clearly associated with desired outcomes, but that there are factors in the classroom ecology that encourage a low focus and minimal process activity. (Seven tables of data are included, and two notes and 20 references are appended.) (MS)

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STUDENTS' APPROACHES TO ESSAY-WRITING AND THE QUALITY OF THE WRITTEN PRODUCT

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ABSTRACT

Studies of text comprehension suggest that readers focus on different levels of ideational unit while reading, thereby affecting the quality of their comprehension of the text (e.g. Kirby, in press; Marton & Saljo, 1976). It is hypothesised that a similar differentiation during key writing-related activities determines the quality of written essays. A process x level of processing model of essay writing is used to classify the approach used by 24 student writers, ranging from grade 11 to graduate school, who were interviewed about the way they were handling a current assignment. Three groups were distinguished: deep, where focus was consistently high throughout planning, composing, and revising (N = 9), surface, where focus was consistently low (N = 8), and mixed, where focus varied (N = 7). Completed essays were evaluated on: grade (whatever criteria the teacher used in fact), length (number of words), structure (genre-appropriate vs. inappropriate), and mode (highest level of abstraction used in the universe of discourse). Writers using a deep approach achieved higher grades overall, but some writers using mixed and surface approaches achieved high grades through sheer length and wealth of detail. All deep-produced essays were genre-appropriate, while all surface-produced were genre-inappropriate. Most essays were in the formal mode, but of the five that were not, all were produced by the surface approach. The deep approach is clearly associated with desired outcomes, but there are factors in the classroom ecology that encourage a low focus and minimal process activity. More research is needed to clarify how teachers might present writing tasks in a more encouraging context.

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STUDENTS' APPROACHES TO ESSAY-WRITING AND THE QUALITY OF THE WRITTEN PRODUCT

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Introduction

Essay writing is widely used in educational institutions to fulfil two often incompatible functions: as a means of learning, whereby students can create their own meaning, and as a means of summative evaluation. This ambiguity of the essay's function leads to difficulties. First, the strategies students use for optimising learning are different from those best suited for coping with assessment. Second, the context in which writing is typically presented does violence to the assumption normally underlying communication; that the sender (writer) knows more about the topic in question than does the receiver (reader). Further, the writing tasks typically set in high school -- such as note-taking, making fair copies, and writing to supplied formats -- require the writer to focus attention no higher than the ideational level involved in comprehending a sentence (Applebee, 1984).

Studies of text comprehension also draw attention to the level of ideational unit focused upon (e.g. Kirby, in press; Marton & Saljo, 1976). In the last study, learners who commenced reading a passage with the intention of learning the actual words or other symbols used by the author were referred to as 'surface' learners, while those who set out to learn the meaning the author intended to convey, were referred to as 'deep'. The terms 'deep' and 'surface' have subsequently gained wide currency in the student learning literature, and have been used both to describe general trait-like orientations towards academic learning, and particular interactions with a given task (e.g. Biggs, 1987; Marton, Hounsell & Entwistle, 1984).

In the last kind of application, Biggs (in press) undertook a case study of two mature age writers of a history essay: 'Syd', who typically carried his theme constantly in mind during planning, composing, reviewing and revising his text, and 'Geoff', who mainly processed words and ideas of sentence length during writing. The nature, quality (and in the event, the final grade) of the two essays reflected the approach of each. Syd's essay was structurally complex, tuned to the question, and its universe of discourse was abstract (an historical event in Australian Colonial history was related to an international Zeitgeist), whereas Geoff's told the story of the event with much emphasis on concrete detail, but really failing to address the question. The two essays strongly recalled the 'reflective' and 'knowledge-telling' strategies of writing previously noted by Scardamalia and Bereiter (1982).

Approaches to essay-writing may thus be distinguished that derive from generic approaches to learning a range of academic tasks, and that seem to lead to characteristically different, and differently valued, outcomes. If confirmed on a wider scale, these findings would have considerable implications for the teaching of writing, and for the use of the essay in

learning and evaluation in general.

In this study, it is intended:

(a) to establish the viability of the deep-surface categorisation with regard to essay-writing, and

(b) to relate different approaches to writing to the quality of the written outcome.

A Process x Levels Model of Writing

In his discussion of text processing, Kirby (in press) distinguishes eight levels of abstraction inherent in a text, ranging from features and letters, which are at the most detailed and concrete level, to main ideas and themes, which deal with the higher orders of the semantic meaning of the text. He argues that the two main processes in reading, decoding and comprehension, ideally focus differentially on these levels of ideation: decoding on letters, sounds and words, and comprehension on ideas and the higher units of meaning. The teaching of reading, or of study strategies, can then be optimised by balancing the process with the level of unit processed.

The same levels of ideation may be distinguished in writing, but the processes differ, and are more complicated, than is the case in reading.

Levels of ideation

Writers when producing text have essentially two major concerns: content, referring to the semantic meaning of the text (what to say) and rhetorical, referring to the formal rules governing spelling, grammar, etc. (how to say it) (Scardamalia & Bereiter, 1982) .

The relationships between levels of ideation, and the writer's concerns, are given in Table 1, which refers specifically to the expository essay genre.

While the writer can be concerned with semantic and/or rhetorical aspects at any of these levels, the lower levels are more concerned with mechanics, the higher more with semantic meaning. For example, the sound of the text has little to do with meaning in the case of most essays (although expert writers often pay close attention to the "cadence" of their text, as of course do poets and other expressive writers), while at the highest level, meaning is paramount. The theme of the text-as-a-whole addresses the question, thereby integrating all the particular arguments made in the constituent paragraphs. The meaning of the whole text creates the appropriate discourse structure or genre. Thus, a good answer to a compare-and-contrast essay question, would necessarily involve either the "right" structure, or in the case of a very innovative and skillful writer, the creation of a new genre, or a rephrasing of the question.

TABLE 1: LEVEL OF TEXT PROCESSING AND THE FOCUS OF THE WRITER'S CONCERNS

	CONCERNS	
LEVEL	SEMANTIC	RHETORICAL
THEME	Address Question	Discourse Structure, Genre
MAIN IDEA	Arguments	Cohesive Devices (inter-sent.)
IDEAS	Points, sentences	Syntax (intra-sent.)
CHUNKS	Sub-points, phrase	Syntax (clauses)
WORDS	Lexicon, vocab	Spelling
SOUNDS	Cadence, rhyming	Phonemes
LETTERS	--	Graphemes
FEATURES	--	Font, Letter style

The levels of ideation of most concern in the present context are:

(a) Theme (T), which forms the whole text

(b) Main Idea (MI), which represents the level inherent in a paragraph

(c) Idea (I), which is the level typically contained in a sentence (d)

(d) Words and Phrases (WP), which are simple "chunks" of meaning.

Writing-related processes

Writing-related processes may be grouped under three main headings (e.g. Humes, 1983): planning text, composing and monitoring text, and reviewing and revising extant text.

(a) Planning

On first reading the question, the student forms a global intention (Smith, 1982) concerning the content of the essay, which then guides further activities. Writers may be described in terms of the highest level of textual unit that appears in such plans; they can be of a high order of generality (T or MI), or be restricted to I and WP. Some writers plan across a wide range of ideational levels, from T, through I, to WP, and in so doing often lessen the need for subsequent revision.

After a global intention has been formed, the student usually finds out more about the topic. Updating knowledge can of course occur at any

time up to the point of submitting the essay, and be carried out at high or low levels of generality. Updating can frequently lead to revised plans; it is likely that those who plan high tend to become more consciously aware of the structure of the essay-to-be, and to be opportunistic in their planning, allowing themselves to change their structure during writing (Hayes-Roth & Hayes-Roth, 1979).

(b) Composing and Monitoring

Forming what to say, or "shaping at the point of utterance" (Britton et al, 1975), is very difficult for writers to describe, and has acquired quite a mystique (Salgado, 1980). This production process seems most easily blocked when writers become too concerned with rhetorical concerns (how-to-say-it) rather than with substantive ones (what-to-say) (Rose, 1984).

The criteria for monitoring text (how-to-say-it) need to be applied at some stage, but skilled writers appear to apply them serially, well after producing text, rather than simultaneously with production, or immediately after text appears on the page. These monitoring criteria include: audience sense, and decisions as to style, mechanics, and syntax.

The working memory load during composition is potentially prodigious; writers have to remember the content of what they are saying, what they intend to say, and what they have said already, as well as all the rules and conventions governing text production (Scardamalia, 1980). There are two main ways of handling this load on working memory. The first exactly parallels the case of reading (Kirby, in press); automate the lower order rhetorical (mechanical) aspects of writing as far as possible, thereby freeing working memory for focusing on the main ideas, and on the relationship each sentence (and word) has to the idea or argument. The second is to separate substantive from the mechanical processes, for example by reviewing text separately for mechanics (editing) and for substance (revising).

An individual writer's attempt to grapple with and orchestrate these demands on working memory constitutes a strategic approach to writing.

(c) Reviewing and Revising

Completed text may or may not be reviewed for correction or change. If it is, the question of the level of textual unit being processed arises yet again. Broadly, there are three kinds of change following a review:

(i) Editing (E), in which only mechanical and syntactical features of the text are changed. Here the focus is low level, being on features of words, on words, and on sentences. At no time is the focus higher than on sentences (I).

(ii) Additive revision (AR), which involves including more information on a point, but does not include deleting text. Here the focus is frequently at the level of I, and never higher than MI. Adding text generally implies no more than a single idea, whereas deletion implies

a view of T, in that a segment of text is seen to be irrelevant to the theme and therefore should be cut.

(iii) Interactive revision (IR), which involves changing the order of paragraphs, rewriting text, or deleting text. Such alterations affect the meaning of the whole text.

The present model, then, draws attention to the processes constituting writing, and to the levels of abstraction of the content processed that variously claim the attention of essay writers from the time they view the question to the time they hand in the essay. The present concerns are to see if writers show any consistency in what they focus upon during each of these writing-related activities; and to see if there is any interaction between the activities and the level of focus. An example of the latter would be where detailed and inclusive planning (from T to WP) obviated the need for extensive interactive revision.

Following the usage established in other areas of student learning research, a deep approach would be one when, in the production of a particular written product, the writer is strategic in approach, consistently focusing high, and low when appropriate. A surface approach would be one when the writer consistently focuses low and is less strategic in approach. The question of the generality of a writer's approach -- that is, whether or not a writer adopts a 'deep' approach consistently across other writing tasks, or consistently adopts a deep approach mutatis mutandis across other academic tasks -- is not pursued here.

Method and Subjects

Four groups of student writers were studied (N = 24):

1. Grade 11 History (N = 7 females)

2. Pre-University Mature Age History (N = 5 females)

3. Freshman History (N = 2 males, 4 females)

4. Graduate Education (N = 3 males, 3 females).

The students were selected from volunteers and an attempt was made to obtain both high achieving and low achieving students, and those who considered themselves good and poor writers. The whole classes, out of which these students were selected, completed a background questionnaire on writing and reading habits; these data were not however used in the present study, beyond helping the initial selection of students. It was possible to handle only a relatively small number of students, and it was thought preferable to try to find general patterns of writing over a group fairly diverse as to age and level of education, but in a similar content area, rather than to attempt at this stage to draw samples claiming to be representative of different student populations. It was decided to continue using history as the subject, following the case studies in Biggs (in

press), except that at graduate level a Sociology of Education class was used. One mature-age student in Group 2, who turned out to be virtually illiterate, was dropped from the present analysis; her case raised many interesting questions but ones that are irrelevant to the main thrust of the present study.

The remaining 24 students were interviewed twice: first, while planning and/or writing an essay that had been set in the course, and which was part of the formal assessment of the course, and second, after the essay had been graded, and the teacher's comments had been received. All courses offered a choice of topic, and students received general guidelines as to format and expectations.

The interview schedule was constructed so that students were asked about their writing-related activities during the processes of planning, composing and self-monitoring, and reviewing, with respect to the essay in question, and what aspects of the essay they thought about during each activity. Six students were further televised while writing a section of the essay, and they were then interviewed under stimulated recall about what they were thinking about at key moments (e.g. pauses, apparent blocks). This information was used to cross-check the standard interview material. It was in fact concluded that the transcripts of the original interviews were sufficient to make consistent judgments about the approach of the writers.

Interpretations of the interview transcripts were cross-checked between the writer and a research assistant (Note 1).

Product Analysis

The essays were analysed in terms of the following criteria:

1. Grade. An important index of the quality of essay, particularly as far as the student is concerned, is the grade awarded by the teacher, although obviously this means different things from different teachers as far as the researcher is concerned. Each of the teachers was interviewed about his or her grading scheme, and in all cases these schemes were communicated to the students to at least a token extent. For analysis purposes, the grades awarded were pro-rated to a 10-point scale.

2. Length. The length of all essays was recorded as the number of words divided by 100.

3. Structure. The discourse structure of the essays was classified by the SOLO Taxonomy (Biggs & Collis, 1982), which in this case makes basically two categorisations: essays in which the content is organised into a structure that is appropriate to the genre implied by the question (classified as relational), and essays in which the content is unorganised, or organised inappropriately, which in the case of history frequently means a chronological 'story' (classified as multistructural).

4. Mode. The highest level of abstraction reached in the universe of

discourse (Biggs & Collis, 1982). Two modes are relevant here: concrete-symbolic, where written language is used to describe events directly and in which the referents are real events, and formal, where the referents in the text are hypotheses or theoretical constructs.

SOLO ratings were carried out blind, and independently of the approach to writing ratings (see Note 1).

Results and Discussion

Defining Approaches to Writing

All 24 students could be classified into three groups, as outlined in Table 2.

TABLE 2: LEVEL OF FOCUS, WRITING-RELATED ACTIVITY, AND APPROACH TO WRITING

	WRITING-RELATED ACTIVITY		
APPROACH	PLANNING	COMPOSING; MONITORING	REVIEWING; REVISING
DEEP (N = 9)	Always T, sometimes down to WP	Always to MI, sometimes up to T.	Always IR; and E kept as separate activity
SURFACE (N = 8)	Never > MI, frequently I. Sometimes 0	No evidence > I	E, or E + AR; IR rare. Sometimes 0
MIXED (N = 7)	Not fitting above criteria for either category. Usually a high level, but not > MI, during planning and composing; low level during revision (often AR; sometimes IR).		

Note: T = Theme
MI = Main Idea
I = Idea
WP = Words and Phrases
E = Editing
AR = Additive Revision
IR = Interactive Revision

As can be seen, the students were quite consistent in their level of ideational focus during the various phases of writing. Nine students planned thematically, and a few of these also included lower level content in their plans. One girl who planned thematically also included a great deal of detail, down to WP, which meant that she did correspondingly less revision later on.

In their composition and monitoring phase, these nine students always wrote within the context of at least a main idea; some claimed to ber

conscious of T throughout. All these students separated interactive revision from editing, although in one case (the girl with T-through-WP plans), the IR was minimal. In short, except for the specific case of editing, these nine students maintained an at least MI level throughout the various phases of their writing, and accordingly their approach is labelled deep.

Eight students maintained a consistently low level of focus. In two students, planning was absent: they simply sat down and wrote. Two more planned out quotes and ideas (I) and worked around those; the remaining three formed their essay out of a series of main ideas (MI) about what to say, but never putting them together to form a theme as such. During the production of text, none of the 8 students was able to report that his or her next thought was more than the next sentence away. This is obviously difficult to check when most students were asked about this in retrospect, but the evidence gained under stimulated recall confirmed that students did seem able to report on this aspect of their writing retrospectively, and the data are internally consistent. Finally, of these 8 students, one reported that she did not revise her text at all, 5 reviewed and edited only (E), one edited with AR, and one with IR. Here, then, we see a consistent low focus, occasionally reaching to MI during planning and revising, but basically focusing on a sentence (I) level, and accordingly the approach they use is labelled surface.

The above criteria accounted for all but 7 students, who were categorised as mixed. Two of these students were in grade 11; the rest in graduate school. The two grade 11 girls were both 'model' essay writers; they did as they were told, and wrote impersonal, formalistic essays. One reported that she drew up a plan directly on the question wording: "You don't reinterpret it, you just get more ideas as you read, like for each side, cause like you're comparing ..." (The question was 'In what ways was the reign of Tutenkhmen different from that of Akhnaton?' -- a typical compare-and-contrast genre). After writing the body of the essay she wrote the Introduction "with the points in the same sort of order"; the Conclusion, "more or less what the introduction was, sort of repeating the question ... ". She did then think fleetingly in terms of T, but mostly around main ideas and paraphrasing those. The essay itself was awarded 8 out of 10, and was classified as having a relational structure, even if the process by means of which she arrived at this satisfactory outcome was suspect.

The other five mixed approaches were found amongst graduates who were undergoing after-degree teacher education. Mostly these were students who were not very interested in the topic, or who were inexperienced with essay-writing (four were math/science graduates). They tended to plan and think about the topic quite abstractly, but pay little attention to revision.

Table 3 gives the distribution of approaches to writing by level of education.

TABLE 3: APPROACH TO WRITING AND LEVEL OF EDUCATION

	Grade 11	Pre-Uni	Fresh	Grad.	Total
Deep	2	3	3	1	9
Mixed	2	-	-	5	7
Surface	3	2	3	-	8
Total	7	5	6	6	24

$\chi^2 = 11.27$ for 6 d.f. ($P < .05$)

The chi-square (Note 2) is significant owing to the high proportion in graduate school of students who used a mixed approach. No conclusions can be drawn developmentally; that, for example, a deep approach is more likely to be adopted by more mature or experienced writers.

Approach and Outcome of Writing

Two main analyses were used to investigate relationships between approach and quality of the written products. In the first, direct relations between approach and grade awarded (Table 4), and length (Table 5) are reported in the form of one-way ANOVAs, or as contingency tables involving approach and discourse structure (Table 6), and approach and highest mode used (Table 7).

TABLE 4: APPROACH TO WRITING AND ESSAY GRADE AWARDED

	Deep	Mixed	Surface
Mean	7.67	6.86	5.88
SD	1.15	1.14	1.33
N	9	7	8

$F = 4.65$ for 23 d.f. ($P < .05$)

TABLE 5: APPROACH TO WRITING AND LENGTH OF ESSAY

	Deep	Mixed	Surface
Mean	19.56	23.07	16.69
SD	5.00	6.86	5.88
N	9	7	8

$F = 1.26$ for 23 d.f. (n.s.)

It can be seen that there are significant differences between the groups on grade awarded, despite the fact that the four teachers used their

own criteria in determining grade. Scheffé comparisons showed that the deep approach mean was significantly higher than that for surface ($P < .05$), but the other comparisons were nonsignificant. There is more variability in the surface group, and as discussed below, one surface student was given the highest grade in her class on the basis of 'knowledge-telling'.

Although the mean number of words per essay did not differ significantly between groups, but observations on essay length are in order. The essays of the deep group ranged from 1,100 to 2,600 words, those of the surface group from 500 to 2,500 words, and those of the mixed group from 1,250 to 4,000 words. The three longest essays came from the mixed group; two were multistructural. The longest of the grade 11s was also multistructural and came from a student using a surface approach who, although chided by her teacher for exceeding the word limit, was then commended for her "coverage and thoroughness", and given the highest grade in that class. (She didn't in fact compare Tutankhmen with Akhneton, but gave the life histories of each). There appear to be two kinds of surface writer: the knowledge-teller, who is highly motivated but simply has the wrong conception of what a history essay should be ('more is better' is not a conception that is corrected by awarding high grades for long, unstructured essays), and the unmotivated writer who also thinks concretely, but sparsely, about the topic.

TABLE 6: APPROACH TO WRITING AND DISCOURSE STRUCTURE OF ESSAY

	Multistructural	Relational	Total
Deep	0	9	9
Mixed	3	4	7
Surface	8	0	8
Total	11	13	24

$\chi^2 = 18.48$ for 2 d.f. ($P < .001$)

TABLE 7: APPROACH TO WRITING AND HIGHEST MODE USED

	Concrete-symbolic	Formal	Total
Deep	0	9	9
Mixed	0	7	7
Surface	5	3	8
Total	5	19	24

$\chi^2 = 12.61$ for 2 d.f. ($P < .01$)

The association between approach and discourse structure is striking and highly significant: no writers using a deep approach obtained less than

a relational structure in their essays; none using a surface approach obtained higher than multistructural. The mixed approach fell in between. This sort of relationship, between approach to a particular task and the complexity of the structure of the outcome of engaging that task, is in fact becoming familiar in the student learning literature. Apart from Marton & Saljo's (1976) study mentioned above, both Van Rossum & Schenck (1984), with a history task, and Watkins (1983), with literary and computing science tasks, classified the complexity of learning outcomes, using the SOLO taxonomy, and found very strong relationships between these classifications and assessments of deep and surface approaches to the task in question. Van Rossum and Schenck found, as here, that "when a surface approach is used the level of learning outcome is never higher than multistructural" (op. cit. p. 80). There is, then, unequivocal evidence that the deep approach does achieve desirable outcomes; more unequivocal in fact than the relationship between approach and actual grade awarded, where it seems that the student using a lower level approach to the task may nevertheless beguile the teacher into awarding high grades.

Only five essays were written exclusively in the concrete-symbolic mode, where the writer simply described real-life events, and all were written by students using a surface approach, two at least of whom were adults (perhaps surprisingly, there was no relation between mode and level of education). It is in fact quite plausible that the approach used may limit the level of abstraction that can be expressed, in that limiting oneself to a sentence-length (I) would tend to keep one's writing at a concrete level.

Second, a regression model (Note 2) was constructed in order to test the possibility that length may interact with grade or mode. The four product parameters, and the interactions length x grade awarded and length x mode, were used to predict the membership of the three approach groups. The only significant b coefficients were, however, those of the main effects of grade, discourse structure, and mode:

Approach Group = 1.036 - .171 x Grade + 1.012 x Structure + .509 x Mode

This model enabled correct classification of 21 out of the 24 students into their approach-to-writing groups, the three misclassifications being 'mixed' students who were classified as 'deep'; and it accounts for 81% of all the variance present. The SOLO structure variable accounts for six times the variance than that accounted for by grade, and twice that accounted for by mode.

The two kinds of analysis thus lead to very similar conclusions:

(1) A deep approach to writing is likely to result in an essay with an appropriate discourse structure, that is written at a high level of abstraction, and that is likely to be awarded a high grade.

(2) A surface approach to writing is likely to produce an ill-structured essay, written at a more concrete level of abstraction, and is likely to achieve a low grade, although sometimes the surface

approach of 'knowledge-telling' can also result in high grades.

Conclusions

Although this study was small in scope, the findings strongly reinforce others obtained both in the areas of writing research, and of student learning research in general. Clearly, it would be desirable to carry out more extensive work (a) to confirm the existing findings, both with respect to the generality of the deep/surface distinction in its application to essay writing and its relationship to the quality of written essays; and (b) to test the limits of the distinction, particularly with less mature, and also with less competent, writers.

Clearly, too, the writing model could be specified in much more detail, so that instead of referring to three broad areas of planning, composing, and reviewing, one could look at more fine-grained activities within each, and find out the extent to which one can in fact generalize about the level of focus during a writing-related activity.

In sum, then, generality needs to be further tested at three levels:

1. Within the model itself

2. Across the model and within the domain of writing

3. Across the domains of writing, studying, and other academic learning activities.

The present findings nevertheless have strong implications as they stand. Students who adopt a deep approach to writing write good, structurally integrated, essays at an appropriate level of abstraction. A deep approach, as characterised here, involves:

1. Planning and researching, as indicated by the topic theme.

2. Composing and monitoring strategically, so that while one is continually testing the immediate content of thought against thematic relevance, working memory is not overloaded by thinking of detail, whether semantic, orthographic, or syntactic. Several strategies were observed for maintaining this balance:

   (a) 'thinking high', using superordinate concepts that included detail eventually;

   (b) automatising lower-order mechanical skills so that they did not themselves become intrusive (the converse of this was frequently commented on by surface writers, who when stumbling over a spelling, say, would be thrown from their train of thought);

   (c) where mechanical matters do need conscious attention, the

task is organised as a separate one from a semantic concern; for example, carrying out interactive review after several pages, and leaving editing until the very last.

(d) using word-processing, with its very low-cost provision for revising text interactively (unfortunately insufficient students used a word-processor in the present sample to obtain any idea of the relationship between word-processing and approach to writing).

These are the kinds of strategies that were reported on by writers who spontaneously developed them. The point is: Can these be usefully taught to students who do have not developed them? Can the ability to 'think high' really be fostered by simple intervention? What can teachers do, in the way they present, utilise, and assess extended writing, to encourage students to write strategically and with a high level focus?

These questions are ones that surely warrant further research. As Applebee (1984) has commented, schools do not require students to 'think high' in the writing tasks that are typically presented to them. The same point can surely be made at college and university level. The student learning literature is replete with examples showing how general practices, and particularly assessment practices, encourage surface learning in general (Biggs, 1987; Marton, Hounsell, & Entwistle, 1984), and surface writing in particular:

> I hate to say it, but what you have got to do is have a list of 'facts'; you write down the important points and memorise those, then you'll do all right in the test ... if you can give a bit of factual information -- so and so did that and concluded that -- for two sides of writing, then you'll get a good mark.
>
> A psychology student quoted in Ramsden (1984; p. 144).

> Most of all I write what 'they' like me to ... when I get the piece of paper with BA (Hons) then I will write the way I want, using MY ideas ...
>
> An Arts undergraduate quoted in Watkins and Hattie (1985; p. 137).

In general, then, the present work reinforces the point made by Shuell (1986) on the importance of process-outcome research. Teachers, in reviewing their own teaching strategies, would do well to heed his words:

> If students are to learn desired outcomes in a reasonably effective manner, then the teacher's fundamental task is to get students to engage in learning activities that are likely to result in their achieving those outcomes ...It is helpful to remember that what the student does is actually more important in determining what is learned than what the teacher does.
>
> (Shuell, 1986; p. 429).

A well-structured essay is clearly a desired outcome, and one which, if the present research is any indication, is critically determined by what the student does. It is to be hoped that further research can provide more guidance on what the teacher may do to foster a deep approach to writing.

Notes

Note 1. I am indebted to Ms. Stephanie Moylan for conducting the interviews, and for cross-checking SOLO ratings and approach to writing ratings with the author.

Note 2. Because the values of several expected frequencies in the contingency tables were low, they were estimated by a log-linear model, and the chi-square values were estimated by a maximum likelihood model. I am indebted to Ms. Helen Moynihan for advice on this and for constructing the regression analyses.

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